

## **AMENDMENTS TO THE CLAIMS**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-21. (canceled)

22. (previously presented): An apparatus for conducting chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved relative to the chemical slider by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and
- a device is provided for applying a force to the sliders in order to seal their contact faces, this device is acting on a connecting rod, which extends through central

openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation.

23. (previously presented): Apparatus according to claim 22, wherein the reaction slider and the selector slider are plate-shaped, in particular in the form of an annular disc.

24. (previously presented): Apparatus according to claim 22, wherein the selector slider and the reaction slider are driveable independently of one another.

25. (previously presented): Apparatus according to claim 22, wherein the device for applying pressure to the sliders may be driven electrically.

26. (currently amended): An apparatus for conducting chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into

alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made,

- a device, provided for applying a force to the sliders in order to seal their contact faces, the device acting on a connecting rod, which extends through central openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation,
- wherein the device for applying pressure to the sliders is an electrically driven combined spring/magnet spring and magnet mechanism which presses a pressure piston against a pressure plate, with the sliders being arranged between the pressure plate and a stationary drive housing.

27. (previously presented): An apparatus for conducting chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed

holes, one of the reaction chambers and the control orifice may be brought into alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made; and,

- a device, provided for applying a force to the sliders in order to seal their contact faces, the device acting on a connecting rod, which extends through central openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation,
- wherein a drive unit with a stationary cylindrical drive housing and two concentric hollow shafts arranged one inside the other, on which the reaction slider and the selector slider may be non-rotatably fitted.

28. (previously presented): An apparatus for conducting chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into

alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made; and,

- a device, provided for applying a force to the sliders in order to seal their contact faces, the device acting on a connecting rod, which extends through central openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation,
- wherein a drive unit with a stationary cylindrical drive housing and two concentric hollow shafts arranged one inside the other, on which the reaction slider and the selector slider may be non-rotatably fitted, and
- wherein the connecting rod extends through the hollow shafts and is pivotally connected, at the end furthest from the pressure piston, to a rocker arm which is pivotally connected at its other end to the device for applying pressure to the sliders.

29. (previously presented): Apparatus for conducting chemical reactions, comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common

axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and

- one or more of the feed holes connected to a chemical feed line, which is connected to a valve assembly, via which at least two different chemicals may be supplied to the feed hole.

30. (previously presented): Apparatus according to claim 29, wherein the valve assemblies have at least two valves, each controlling the supply of a reagent.

31. (previously presented): Apparatus according to claim 29, wherein the valve assembly has a multiway valve which is switched alternately between the feed hole and at least two branch lines in such a way that the feed hole can be brought into communication with one of the two branch lines.

32. (previously presented): Apparatus according to claim 31, wherein the multiway valve is located directly on the chemical slider.

33. (previously presented): Apparatus for the conduct of an oligonucleotide synthesis, with several reaction chambers into which reagents may be metered, wherein there is provided a display unit with a window for each reaction chamber, wherein a significant value for the quality of the reaction proceeding in a particular reaction chamber is displayed in each of the individual windows.

34. (previously presented): Apparatus according to claim 33, wherein an optical sensor is provided to detect the light transmittance of the intermediate and end products produced in the reaction chambers.

35. (previously presented): Apparatus according to claim 34, wherein the optical sensor is mounted directly adjacent to the selector slider.

36. (previously presented): Apparatus according to ~~any of claims~~ claim 33, wherein the significant value for the reactions is the correlation coefficient R of measured values of a light transmittance measurement of the intermediate and end products.

37. (previously presented): Apparatus according to claim 36, wherein the significant value for the reactions is the absolute value of the correlation coefficient R of measured values of light transmittance measurement of the intermediate and end products.

38. (previously presented): Apparatus according to claim 36, wherein in each case the most recent value in the calculation of the correlation value is weighted more heavily than the other measured values.

39. (previously presented): Apparatus according to claim 33, wherein the apparatus for the conduct of an oligonucleotide synthesis comprises:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common

axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and

- a device is provided for applying a force to the sliders in order to seal their contact faces, this device is acting on a connecting rod, which extends through central openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation.

40. (previously presented): Apparatus according to claim 33, wherein the apparatus for the conduct of an oligonucleotide synthesis comprises:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,

- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,

- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into

alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and

- one or more of the feed holes is or are connected to a chemical feed line, which is connected to a valve assembly, via which at least two different chemicals may be supplied to the feed hole.

41-42. (canceled)

43. (previously presented): An assembly having several apparatuses for conducting chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and

- a device is provided for applying a force to the sliders in order to seal their contact faces, this device is acting on a connecting rod, which extends through central openings in the sliders, so that a force, which is applied by the device for applying a force to the sliders, acts in the area of the axis of rotation,  
wherein there is provided a common supply unit for reagents, with several storage vessels, wherein the storage vessels are provided with a level indicator, and a level monitoring device automatically monitors the levels of the individual storage vessels.

44. (previously presented): Assembly according to claim 43, wherein the common supply unit is also designed to supply gas and electrical power.

45. (previously presented): Assembly with several apparatuses for the conduct of chemical reactions comprising:

- a reaction slider in which are formed a multiplicity of through holes serving as reaction chambers,
- a selector slider located on a side of the reaction slider at which the reaction chambers emerge, and having a continuous control orifice, wherein the selector slider is movable relative to the reaction slider,
- a chemical slider, located on the opposite side of the reaction slider to the selector slider, wherein feed holes for the supply of chemicals emerge on the surface of the chemical slider facing the selector slider, and the reaction chambers of the reaction slider and the feed holes of the chemical slider are arranged along an orbit, and the reaction slider and the selector slider may be so moved by rotation around a common axis of rotation which passes through the centre point of the orbit that one of the feed holes, one of the reaction chambers and the control orifice may be brought into

alignment, so that a through connection to supply the reaction chamber with a predetermined reagent may be made, and

- one or more of the feed holes is or are connected to a chemical feed line, which is connected to a valve assembly, via which at least two different chemicals may be supplied to the feed hole,

wherein there is provided a common supply unit for reagents, with several storage vessels, wherein the storage vessels are provided with a level indicator, and a level monitoring device automatically monitors the levels of the individual storage vessels.

46. (previously presented): Assembly according to claim 45, wherein the common supply unit is also designed to supply gas and electrical power.

47. (previously presented): The assembly according to claim 43 wherein the reaction slider and the selector slider may be moved relative to the chemical slider.

48. (currently amended): The apparatus according to claim 25, wherein the device for applying pressure to the sliders is a combined spring/magnet spring and magnet mechanism which presses a pressure piston against a pressure plate, with the sliders being arranged between the pressure plate and a stationary drive housing.

49. (previously presented): The apparatus according to claim 22, wherein a drive unit with a stationary cylindrical drive housing and two concentric hollow shafts arranged one inside the other, on which the reaction slider and the selector slider may be non-rotatably fitted.

50. (previously presented): The apparatus according to claim 49, wherein the connecting rod extends through the hollow shafts and is pivotally connected, at the end furthest from the pressure piston, to a rocker arm which is pivotally connected at its other end to the device for applying pressure to the sliders.